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PEMBROKESHIRE BIRDS IN 1603.

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SINCE the publication of my 'Birds of Pembrokeshire and its Islands,'* Mr. Henry Owen, B.C.L., F.S.A., has very kindly forwarded to me Part I. of 'The Description of Penbrokeshire,'† by George Owen, of Henllys, Lord of Kemes, that he is editing for the "Cymmrodorion Record Series." This very quaint and interesting description of the county was published in 1603, and contains a short chapter entitled "Of abundance of foule that the Country yeeldeth, and of the severall sortes thereof," ca. 16, p. 128. I was a little surprised to read that, in Queen Elizabeth's day, the Spoonbill, *Platalea leucorodia*, could be included among the birds nesting in trees in this county, and consider that its having anciently possessed breeding stations here accounts for the persistency with which the birds at the present day pay visits to their ancestral haunts; flocks (as related in my book) occasionally still put in an appearance on the mud-flats adjacent to Milford Haven, and are also not rare in the neighbouring county of Cardigan on the river Dovey. The history given by the Lord of Kemes of the abundance of the Woodcock in his day is peculiarly amusing; and his whole account of the *ornis* of the county seems to be worthy to be subjoined *in extenso*. The editorial footnotes are also valuable, and are given, although the identifi-

* Reviewed in 'The Zoologist,' 1894, p. 487.

† This is the old spelling of the name of the county, and is said to come from two Welsh words, *Pen* "head" and *broch* "foam," descriptive of the storm-vexed headlands of its coasts.

cations of some of the old names of the birds are open to question. It is doubtful if the name *Whyniarde* applies solely to the Shoveller Duck, on which species, according to Swainson (Prov. Names, p. 158), it is bestowed in Waterford. *Winnard*, in Cornwall, is the local name of the Redwing. *Pilwater* may be connected with the west-country *pill*, the name given to a small tidal creek; and may be equivalent to *pillcock*, the Devonshire name of the Redshank. See 'The Zoologist' for March last (p. 106). In Welsh *pil* means equally a creek and something that hovers, and from its latter meaning its connection is probably traced with the Shearwater. It is also doubtful if *flushe* = "fledged," but rather "full grown" or "in vigour," which it is stated is its Shakesperian sense.

"OF ABONDANCE OF FOULE THAT THE COUNTRY YEELDETH,
AND OF THE SEVERALL SORTES THEREOF." Ca: 16.

Haveinge spoken somewhat of the fishe taken in the Countrey as one chiefe Comodytie of the same, yt standeth in Course next to speake of the fowle, w^{ch} yearly breedeth in, and haunteth the land and sea shore w^{ch} are not so diuerse in kinde, as abundant in multitude, and plentie, w^{ch} is allmost incredible to be reported; and what plentie, and chepenes ys to be had at some times and seasons, whereof some are found allwaies in season, as the grouse, heathcocke, and woodquyst,* the Crane,† the heronshew, the gull kept, and fedd, the Curlew &c, some other are but at seasons, as the woodcocke, the wild goose, wild ducke, bittur, wilde swanne &c.

GULLES. But of all fowle, wee of Penbrokeshire claime interest in two sortes chiefly, that is the gull, and the woodcocke, for the great plentie wee assure our selves of yearly, the first being our owne naturall, and natyve Countrey fowle breede amonge vs, and for his good stomacke much of disposicion, wth the baser sort of labouringe people of some part of our Countrey that are (truelie) slaundred‡ with eating fyve meales a daye, and in such abundance, and plentie, that in their season, the townes

* The Wood Pigeon.

† The Crane has left us; the heron, or heronshaw (properly young heron), is still locally called the "long crane,"

‡ Slandered.



& countrey about are verye plentifulle served therewth; the chiefe nurserie of this fowle is in small Ilandes, in the sea, and neere the lande whereof I have made mention before in the 14 chapter, where I entreate of salte Ilands, where in Maye and June they are found to breede in suche plentie, that you can hardlie walke on the lande of some small Ilands wthout treading on the Egges in the nestes vpon the ground. These fowles breede also in the sea cliffes in great store, and are ripe about mydsomer, at w^{ch} time they become flushe,* and are taken being readye to forsake their nestes, and such as are flushe are followed wth boates, and taken swymminge, not being able to flee, and a broght a land, and are very dayntie meate :† presentlie as soone as they are taken, and wilbe fedd, and kept as a readye dishe all the yeare, over and beside the provision, w^{ch} the gentlemen and others of the sheere doe make to serve their houses, there is great store sould into England, and sought and sent for out of the inland shires, a hundred miles and more.

WOODDCKOCK. The woodcocke, although he be not our countryeman borne, yet wee must needes thinke him to be of some affinitie to manie of our countrie people, by reason of the love and kindenes he sheweth in resortinge hither, first of all before other partes of Wales, or England, and in more aboundance then ellswere, and stayeing longer wth vs than in anie other place, and if I maie in sport suppose a cause thereof, let yt be, for that the people in generall of this countrey are found to be of more playne meaninge, simple, harmlesse, and farthest from Machiavill devises, or bearinge highe and pryeing spyryttes; this fowle being noted likewise for his symplicitie (of some called foolerye) yt maye be guessed, he maketh choice rather to converse amonge these people being neerest to his innocent, playne and symple humour, according to the old Adage, *Similis similem sibi quærit*, but whatsoever the cause ys, wee are most beholding to him of all other fowle, and first for his tymelie visitinge vs; Yf anie Easterly winde be alofte, wee shalbe sure to have him a fortnight, & sometimes 3 weeke before Michaelmas, and for plentie yt is allmost incredible, for when the chiefe time of haunte ys, wee haue more

* Fledged. To "flush" a bird is to make it take wing.

† Lewis, the great-grandfather of Fenton the historian of Pembrokeshire, says that in his day they would as soon think of eating Cormorants.

plentie of that kinde of foule onely, then of all other sortes layed together, the chieftest plentyeys betweene Michaelmas and Christmas, and in these three monethes he visiteth most houses, their chiefe takinge is in cockeroades* in woodds, wth nettes erected vp betweene two trees, where in cocke shoote tyme (as yt is tearmed) w^{ch} is the twylight, a litle after the breakinge of the daye, and before the closinge of the night) they are taken, sometymes ij. iij. or iiij at a fall. I haue my selfe oftentimes taken vj at one fall, and in one roade, at an eveninge taken xvij, and yt ys no strange thinge to take a hundred or sixe score in one woodd in xxiiij^{or} houres if the haunt be good, and much more hath beene taken, thoughe not vsually. Yt is strange to thinke from whence theis fowles shold come in such soddayne sorte, as they are ffound to doe, for if there be not one seene, or to be founde in the Countrey, if at any time, the East Southeast or Northeast winde blowe could, and sharpe, this Countrey wilbe full wth in xij houres, and yet in the countries, w^{ch} lye East of this not one to be seene or found in a moneth after: then againe the nature of the fowle ys not to flee in the daie tyme, nor in the night, but reasteth all daye in the woodd, and all night abroad in the fieldes feedinge, and onely fleeth one flight every evening out of the woodd into the fields, and every morninge retourneth againe into the woodd, and so resteth all daye, and all night, so that yt ys to be marveiled, from whence they come, or where they breede; for if they shold come from out of the Easterne Countreys; yt were very likely they shold bee seene to flee by day or by night, w^{ch} as I saied before ys against their nature: allso they shold be found in those Countries wch lye Easterly of this sheere, as ys the Counties of Carmarthen, Brecknock, Cardigan, Radnor and

* Fenton (p. 6), in his eulogium on his great-grandfather, John Lewis, says that he remembers three glades at Manarnawan used in his time for catching Woodcocks in winter. And see our author's account of the wood of Pen Celli (cf. pp. 86, 101, above), quoted from a Bronwydd MS. by Fenton, in 'Cambrian Register,' ii. 104:—"Also there is in said wood 18 *cock shots*, wherein is great store of Woodcocks taken yearly, which *cock shots* are the Lord's own," &c. Shakespeare, Rich. III. v. 3, speaks of "*cock-shut time*." *Cock shut* occurs commonly in the place-names of the parts of England that border on Wales, and is not uncommon in parts of Wales itself. In at least one case it has been Wallicized into *Coesyth*. There is a place called *Cock road* between the Hardington and Buckland Woods, about three miles N. of the town of Frome.

Salop, in w^{ch} Countreyes yee shall hardlie finde any iij weekes or a moneth after this Countrie ys filled with them: ffurther they come not by one and one, or fewe, but at a suddaine all partes are filled wth them, so that some men of Judgement are of opynion, that they are to be nombred *inter animalia imperfecta*; and that they are engendred and raised by the meare Easterlye winde of some substance here in the Countrie; the like whereof you may reade of diuerse other fowles and other wormes in *Plynie*.*

The Plentie of this, and other kinde of fowle hath beene such in a hard wynter, as I haue hard a gentleman of good sort and credytte report that he hath bought in St. Davids, ij woodcockes, iij snipes, and certayne teales and black byrdes for a peny, and suerly yt will not be beleaved in other places, what penyworthes are hadd of fowle in this Countrie yearly.

Beside these two kindes of fowle, w^{ch} wee accompte among houshold fare, the countrie yeeldeth great store of other sortes as the mountaines foster, the grouse, heathcocke, which are all-waies in season, and the plover both grey and russett,† the sea clyffes harbour the wylde pygeons, the dove house the tame; in the bogges breedeth the crane, the byttur,‡ the wild ducke, and teale, and diuerse others of that kynde; on highe trees the heronshewes, the shovler,§ and the woodquistes; the heronshewes are also found in many places of the sea clyffes but chiefly on highe and stately trees, to w^{ch} places they are quickly allured by placeing of horsehead bones upon branches of trees, wch will provoke them to like of the place; where they breede they come in companies, so as you shall haue in some places xij or xvj nestes vpon a tree, they breede iij times in the yeare, if the yonge be taken awaie, otherwise but once, they hatche first about *Aprill* and *Maye*, and commonly bringe furth at the first sitting, 4. 3 the next, and lastlie. 2: yonge.

* For this curious theory of wind-eggs, cf. Varro, 'De Re Rust.' ii. 1. Virgil (Georg. iii. 275) attributes similar powers to the west wind.

† The Golden Plover.

‡ This is the old form of the word (from Fr. *butor*). See 'Faerie Queene,' viii. 50. The Bittern as a breeding species has been improved off the land by modern drainage, and is now only met with in winter.

§ The Shovelard, or Spoonbill (a wader). Sir Thomas Browne, writing in 1668 'On Norfolk Birds,' mentions it as common in his time, breeding "formerly at Claxton & Reedham; now at Trimley in Suffolk."

In the field breedeth the Partridge, quaille, raile, lapwing and larke, and many other sorte of small byrdes, and in shrubbes, groves and hedges breedeth the pheasant though scarce in this Contrye. The Curleue * contynueth allwayes in this Contrye, yet never fond to breede, and they flee in small herdes together. The Countrie yeeldeth allso diuerse other fowle, as wild geese, Whyniarden,† the Puett,‡ the Curlew knave,§ the gwylin,|| the Sheldrake, both sorts of dyvers or dippers, the pilwater,¶ the Wigion, Cootes, w^{ch} allso keep in Companies, sea pies and sea crows,** being most water foules, beside the blacke bird, thrushe, the wynter socke, the stare,†† the house and headge sparrows, the fynche, the bunten, all w^{ch} shold haue beene seated‡‡ wth small birdes before. And as I ended my last chapter of fishe wth three strandge natured fishes, so lett me shutte vp this of fowle wth the like; of w^{ch} I finde two, the one strange in accompt, the other in nature; first of w^{ch} is the Puffine, a bird in all respectes bredd of byrdes of his kinde by layeing egges, fethered & flieing wth other birdes in the ayre, and yet is reputed to be fishe, the reason I cannot learne. But if I were so ceremoniouse as to refrayne fleshe at seasons, I shold hardely adventure to eate this fowle for fishe, yt is a water fowle lesser then the ducke and lardger then the teale, footed and beaked like vnto them, and breedeth on the Iland of *St. Davids*§§ and other like places.

The second is the Barnacle a goodlie byrd in all respectes like the wilde ducke, but much lardger, having head and foote like to the ducke and ys in eatinge like yt allso. This fatherlesse byrd is bredd of noe parent, but engendred by secreat nature out of some peece of tymber remayninge long in the sea, and at shippes sides having remayned long in the salt water, out of w^{ch} vpon longe stringes or roapes shalbe seene x. xx. or xxx of these byrdes growinge out of two shells, like muskle shells, where you shall find some beginninge to appeere out of the shells, having the perfect forme of a fowle, some more ripe, readie to fall of,

* The Curlew (Fr. *courlieu*), in Welsh (*y*) *Gylfin-hir*, corrupted in the Vale of Dovey into *Glyfeinir*.

† Shoveller Duck.

‡ Black-headed Gull.

§ The Whimbrel.

|| The Guillemot.

¶ The Manx Shearwater.

** Oystercatchers and Cormorants (called in Welsh *morfran*, *mulfran*).

†† The Fieldfare and Starling.

‡‡ Set down.

§§ Ramsey Island.

having winges, legges, and budds of feathers, hanging onely by the bill, of these I haue seene manye, and as the people report and verielie are perswaded, these be the Barnacles, for other breedinge there is not found of them.*

THE MAMMALIAN FAUNA OF CHESHIRE.

By T. A. COWARD AND CHARLES OLDHAM.

(Concluded from p. 221.)

Order CETACEA.—Fam. BALENIDÆ.

Megaptera boöps, Fab.; Hump-backed Whale.—A young female, 31 feet in length, was stranded on a sandbank in the Mersey estuary, near Speke, on July 17th, 1863. It was examined in the flesh by T. J. Moore, whose account of its capture ('Naturalists' Scrap-book,' p. 103) was quoted in 'The Zoologist' for 1863, p. 8801. The skeleton is now in the Brown Museum, Liverpool. Dr. J. E. Gray's erroneous statement that this specimen was captured in the Dee estuary (Proc. Zool. Soc. 1864, p. 211) has been repeated in the second edition of Bell's 'British Quadrupeds,' and elsewhere.

Family PHYSETERIDÆ.

Hyperoödon rostratus (Chemnitz); Common Beaked Whale; Bottle-nosed Whale.—This species has occurred on the coast more frequently than any of the other large cetaceans; and, unless there has been some confusion and error with regard to dates and localities, there are no less than nine distinct records. An example, 24 feet in length and 12 feet in girth, was taken in October, 1785, "in the recess of the river Dee below Chester" (Pennant, quoted by C. Collingwood, "Historical Fauna of Lancashire and Cheshire," Proc. Liv. Lit. and Phil. Soc., vol. xviii. 1863-4, p. 163). One taken at the mouth of the Mersey at the end of April, 1829. The skeleton was preserved in the Museum of the Royal Institution, Liverpool ('Loudon's Magazine,' vol. ii. p. 391). One, 24 ft. in length and 13 ft. in girth, captured on the East Hoyle Bank at the end of September, 1839 (Wm. Thompson,

* The old fable that the Bernicle Goose was produced from old ships rotting in the ocean was refuted by Ray and Willughby in 1676 (Harris's 'Travels,' ed. 1764, ii. 669).

Ann. Nat. Hist., 1st series, vol. iv. 1840, p. 379, and vol. v. 1840, p. 361). Byerley records four occurrences: one on the East Hoyle Bank, 1850; one at Little Meols about the year 1851; a male, 21 ft. long, on the East Hoyle Bank, Aug. 25th, 1853. For three weeks after the capture of the last-named specimen another—supposed to be its mate—frequented the neighbourhood, but was not secured. One, 24 ft. long, was stranded at Speke in October, 1856. The skeleton is preserved in the Nottingham Museum (T. J. Moore, 'Report ii. Liverpool Marine Biology Committee,' p. 142). One captured near Speke on Sept. 2nd, 1881 (T. J. Moore, Proc. Liv. Lit. and Phil. Soc., vol. xxxvi. 1881-2, p. xlix).

Family DELPHINIDÆ.

Phocæna communis, F. Cuv.; Porpoise.—Byerley describes this species as "frequent in shoals during stormy and changeable weather;" and Mr. Newstead says, "Often occurs in the Mersey below Eastham." Moore states, in his list of Seals and Whales, that a form "named by Dr. Gray *P. tuberculifera*, on account of a series of short spiny processes on the front edge of the dorsal fin, would appear to be not uncommon, for two specimens at least had come under his observation in our district; namely, one speared a quarter of a mile off the Rock Lighthouse, Feb. 7th, 1867, measuring 4 ft. 8 $\frac{3}{4}$ in., and another, 4 ft. 4 in., taken near the Herculaneum Dock, Oct. 12th, 1881."

Orca gladiator (Lacép.); Grampus.—A male, stated to have been 25 ft. in length, was stranded at West Kirby on March 22nd, 1876. The purchaser of the carcass stated that in its death agony the creature threw up a quantity of sea-fowls' feathers (T. J. Moore, Proc. Liv. Lit. and Phil. Soc., vol. xxx. 1875-6, p. lxxxv).

Lagenorhynchus albirostris (Gray); White-beaked Dolphin.—A full-grown male of this species was stranded on the rocks at Little Hilbre on Dec. 29th, 1862, and was secured by Mr. Barnett, of Hilbre, for the Brown Museum, Liverpool. It lived eight hours after it was taken from the water (T. J. Moore, Ann. and Mag. of Nat. Hist., 3rd series, vol. ii. 1863, p. 236).

Delphinus delphis, L.; Common Dolphin.—This species has been observed twice on the Cheshire coast. One was found on the shore at New Brighton on Feb. 13th, 1879. The skeleton is in the Brown Museum, Liverpool (T. J. Moore, Proc. Liv. Lit.

and Phil. Soc., vol. xxxiii. 1878-9, p. lxxii). Another was stranded at West Kirby on Feb. 17th, 1893, and is preserved in the Brown Museum, Liverpool. We are informed by the Rev. G. H. Staite, of West Kirby (*in lit.*), that this example "was stranded with another much larger one, which had been so mutilated, evidently by some mischievous person, as to be useless. The weather had been stormy. The Dolphin was taken, as the tide was receding fast, off the south of West Kirby village. It was quite vigorous, and lived till next day."

OBSERVATIONS ON BIRDS IN MID-WALES.

By J. H. SALTER.

(Concluded from p. 224.)

FULICARIÆ.

WATER RAIL, *Rallus aquaticus*. Doubtless a common resident, though only noticed during the shooting-season, when many are obtained.

SPOTTED CRAKE, *Porzana maruetta*. Probably breeds sparingly, as a few are always shot in September and October. Mr. F. W. Fielden has met with five examples. There are three in the possession of Capt. G. W. Cosens, and one at Gogerddan.

CORNCRAKE, *Crex pratensis*. Fairly numerous. An injured bird has been known to stay the winter. 1892, May 1st; 1893, April 21st; 1894, April 21st.

MOORHEN, *Gallinula chloropus*. Not numerous, as suitable ponds and streams are scarce.

COOT, *Fulica atra*. Scarcely known as a resident, as lakes with suitable covert are wanting. Occurs in winter on the Dovey, and in flocks on the sea.

GAVIÆ.

BLACK TERN, *Hydrochelidon nigra*. An example obtained by Mr. Hutchings in spring, one of two which frequented a sheltered inlet in front of the College.

COMMON TERN, *Sterna fluviatilis*. A passing migrant, seen chiefly in May. Its appearance at the lakes in the hills is regarded as a sign of bad weather. Breeds on the coast of Anglesey, but apparently not on the shores of Cardigan Bay.

ARCTIC TERN, *S. macrura*. Occurs with the last named.

LITTLE TERN, *S. minuta*. Breeds in small colonies of from two to twenty pairs at intervals along the Merionethshire coast. On June 13th, 1894, I found six nests in the course of a few minutes. One of the birds flew towards me, hovered, and alighted upon its nest within fifty yards. The eggs are hatched about July 3rd.

SABINE'S GULL, *Xema sabinii*. An example occurred after three days of very rough weather, Oct. 17th, 1891. It is now in the collection of Sir Vauncey Crewe at Calke Abbey.

IVORY GULL, *Pagophila eburnea*. Two occurrences at Aberystwyth within the last thirty years, both the birds having passed through the hands of Mr. Hutchings.

KITTIWAKE, *Rissa tridactyla*. Invariably appears inshore after rough weather. During exceptional storms many are beaten down into the sea and drowned. Has no breeding station on the Cardiganshire coast.

BLACK-HEADED GULL, *Larus ridibundus*. A common winter gull, and almost equally numerous in summer, when many remain on the Dovey, and are seen passing to and fro between the river and the hills. I also found plenty at Barmouth at the end of June, and on July 3rd saw two speckled young birds in the river, so that there is probably a nesting-place somewhere in the hills. A few pairs seem to have attempted to nest at Mochras Island, as they noisily mobbed some visitors. Amongst rushes I found what I supposed to be their nests, and picked up an undoubted egg.

LITTLE GULL, *L. minutus*. Capt. G. W. Cosens saw an example in mature plumage at Glandovey, and noticed the black under side of the primaries. Two have occurred to Mr. Hutchings, one of them during the storm of October, 1891, which brought the Sabine's Gull and Grey Phalaropes.

ICELAND GULL, *L. leucopterus*. Not at all infrequent, but, curiously enough, appears not to have occurred in Pembrokeshire. After a very severe gale some years since Iceland Gulls were plentiful off Aberystwyth. One, in immature plumage, obtained at Borth about Nov. 1st, 1894.

GLAUCOUS GULL, *L. glaucus*. Mr. Hutchings has preserved three or four, one of them a remarkably fine old bird. Once seen by Mr. F. T. Fielden at Borth.

GREAT BLACK-BACKED GULL, *L. marinus*. Chiefly seen about the llyns or pools on the hills in March and April. A few pairs may breed there. I have not found it nesting upon the Cardiganshire coast.

LESSER BLACK-BACKED GULL, *L. fuscus*. Not found nesting upon the coast, but breeds upon the Teifi Bog, about twelve miles from the sea. The colony, which was formerly larger, numbers about fifty pairs. The nests are placed on slight hillocks, generally in deep heather, the vicinity, with trampled grass and scattered feathers, being suggestive of a goose-green. The bog being preserved for Hares and Grouse, the Gulls are subject to ceaseless persecution. Their castings contain bones and fur, but they also fish the pools and streams. A new-born puppy, which I found dead near the nests, had probably been brought as an addition to the commissariat. On June 8th, 1892, I found about sixty eggs, one nest containing four. Owing to the eggs having been collected, only eight or ten young birds were seen at that date.

HERRING GULL, *L. argentatus*. The only gull which breeds upon the Cardiganshire coast. Its colonies commence about six miles south of Aberystwyth, and occur at intervals as far as Cardigan Island, the largest settlement extending for about two miles between Cwm Tydi and Ynys Lochryn. On May 12th, 1894, the nests upon the cliff between Aberaeron and New Quay all contained the complement of three eggs, but these were probably taken, as I found most of the birds sitting upon two eggs on June 26th. Upon this date a few young ones were to be seen upon the ledges, but none had yet gone down to the sea.

COMMON GULL, *L. canus*. Abundant in winter, feeding much inland. On May 2nd, 1894, I saw a flock of about one hundred and fifty, evidently collected previous to departure.

GREAT SKUA, *Stercorarius catarrhactes*. Of less common occurrence than the two succeeding species. Mr. Hutchings only recollects a single instance.

POMATORHINE SKUA, *S. pomatorhinus*. Most of the "Fork-tailed Skuas" reported from time to time are probably of this species. Capt. G. W. Cosens has an example in immature plumage.

RICHARDSON'S SKUA, *S. crepidatus*. Occurs from time to time. An adult of the light race and an immature bird are pre-

served at Gogerddan. At Borth, Mr. F. T. Fielden watched one feeding on offal. It allowed him to approach within a dozen yards, and remained for about ten days.

PYGOPODES.

RAZORBILL, *Alca torda*. Constantly to be seen fishing in the bay, generally in company with the knots of Gulls which hover and scream over a surface-swimming shoal. Many dead ones are washed up in winter after continued rough weather. A few pairs breed in company with Guillemots at New Quay Head.

COMMON GUILLEMOT, *Uria troile*. There is a small colony upon the Craig yr Adar, or "Birds' Rock," a part of New Quay Head. This is the only breeding station upon the Cardiganshire coast. On June 26th, 1894, a few young ones were to be seen, but most of the birds were still sitting.

BLACK GUILLEMOT, *U. grylle*. Mr. Hutchings only knows of one example, a bird in summer plumage, shot in April some miles out in the bay.

LITTLE AUK, *Mergulus alle*. One or two obtained almost every winter, generally washed ashore dead after rough weather.

PUFFIN, *Fratercula arctica*. Seldom seen inshore, unless washed up, though no doubt common in the Channel. It has no breeding station upon the Cardiganshire coast.

GREAT NORTHERN DIVER, *Colymbus glacialis*. Frequent in winter. One shot by Capt. G. W. Cosens was in the act of swallowing a large trout.

BLACK-THROATED DIVER, *C. arcticus*. Once in breeding plumage. Immature birds are not infrequent.

RED-THROATED DIVER, *C. septentrionalis*. Common in winter. One seen on May 6th showed no red upon the throat. On April 5th, 1893, I saw parties of five and twelve fishing near together in shoal-water.

GREAT CRESTED GREBE, *Podiceps cristatus*. Very seldom obtained, and never met with in breeding plumage.

SCLAVONIAN GREBE, *P. auritus*. A winter visitor, chiefly to the Dovey, whence Capt. G. W. Cosens and Mr. F. T. Fielden have obtained examples.

LITTLE GREBE, *P. fluviatilis*. Common, especially in the ditches at Borth.

STEGANOPODES.

GANNET, *Sula bassana*. Those which occur are chiefly storm-driven birds, washed up or found in fields some miles inland.

CORMORANT, *Phalacrocorax carbo*. The Craig y Deryn, or 'Bird Rock,' six miles from Towyn, is well known as an inland breeding station of the Cormorant. Upon the steeper face of the crag each whitened shelf or bracket-like projection supports a nest or two. The old birds sail out from the upper ledges with expanded wings and outstretched neck. Others, coming in from fishing, whizz overhead, and greet the occupants of the nest, as they land upon it, with a resonant bray. At the foot of the rock are scattered nesting-materials, egg-shells, and fragments of trout from the lakes and flat-fish from the sea. The young birds while in the nest keep up a fretful, crooning noise. In August and September they go down to the river below, where many are shot. In 1894 there appeared to be about forty nests, and for the first time a pair or two nested upon an outlying spur of the rock at a much lower level than the rest. On Aug. 31st two white-breasted young birds were still upon the nesting-ledge. The sitting birds, when disturbed, have a habit of blowing out their pouches menacingly. Upon the coast nearer to Aberystwyth, the Cormorant has several much-frequented perching-places, notably the one just to the north of the town, but none appear to breed nearer than Cwm Tydi, south of which point I found about a dozen nests containing newly-hatched young ones on May 13th. There is another small colony upon the cliff at Llangranog.

SHAG, *P. graculus*. Seldom occurs at Aberystwyth, and does not breed upon this part of the coast. It doubtless nests south of New Quay, where there are caves and fissures exactly suited to its requirements.

TUBINARES.

FORK-TAILED PETREL, *Procellaria leucorrhœa*. Occasionally occurs during rough weather. Mr. Hutchings has preserved a fair number.

STORM PETREL, *P. pelagica*. Frequently seen or obtained during westerly gales in autumn and winter. On Oct. 24th, 1894, one was seen from the terrace amongst the crests of the waves close inshore.

COLLARED PETREL, *Æstrelata torquata*. The occurrence of

this wanderer from southern seas near Borth about five years since was recorded in 'The Zoologist' (1890, p. 454).

CAPE PIGEON, *Daption capensis*. I recognised an example of this bird in the collection at Gogerddan, and was informed by Sir Pryse Pryse that it was shot by one of his sons in 1879 on the Dovey. Mr. Mathew, who records an example at Bournemouth (Zool. 1894, p. 396), tells me that this makes the third instance of the occurrence of this Petrel upon the British coast.

FULMAR, *Fulmarus glacialis*. Mr. Hutchings believes that he has had five or six examples. One of these, which I have seen, was shot off the castle at the beginning of January, 1892.

MANX SHEARWATER, *Puffinus anglorum*. Common in the Channel, but seldom seen inshore unless washed up after rough weather. On May 15th, and again on June 17th, 1893, both still and sultry nights, I heard its unmistakable note from the terrace at Aberystwyth. The birds were evidently hawking to and fro very near inshore.

ANSERES.

GREYLAG GOOSE, *Anser cinereus*. Of rare occurrence at the present day. At the end of December, 1892, a frost, which lasted for about three weeks, caused a most unusual visitation of Wild Geese to the Dovey. Capt. G. W. Cosens received a Greylag, one of three shot from a flock of nine by General White's gamekeeper close to Glandovey. Mr. Pryse, of Lodge Park, obtained one about the same time, probably a member of the same party.

BEAN GOOSE, *A. segetum*. Shot by Mr. Pryse early in January, 1893, during the spell of cold weather just alluded to.

PINK-FOOTED GOOSE, *A. brachyrhynchus*. Six are said to have been shot by Mr. Pryse at the same time as the last. One of them is preserved at Lodge Park in a case with a White-fronted Goose, the latter being another memento of the same frost. I have made careful enquiry into this occurrence, as the present species seems to be a rare straggler to the western coast.

WHITE-FRONTED GOOSE, *A. albifrons*. A small flock of about thirty visits the Teifi Bog every winter. In 1892 they stayed till the beginning of May. One or two are generally shot, and in 1892-93 five were thus obtained. Capt. G. W. Cosens has a specimen from this bog. Col. Fielden obtained one on the Dovey, Dec. 21st, 1890. There is another from the same locality

at Gogerddan, shot during the great frost of January, 1855; while others occurred to Mr. Pryse in January, 1893, one of them, a fine gander, being preserved at Lodge Park.

BRENT GOOSE, *Bernicla brenta*. Visits the Dovey every winter. On Jan. 9th, 1893, I saw two parties, numbering in all about thirty.

BERNICLE GOOSE, *B. leucopsis*. I have heard of no recent occurrence, but there were some in the Dovey during the Crimean winter of 1854-55.

WHOOPER, *Cygnus musicus*. Swans are frequently reported, but the majority of them certainly belong to the next species. Mr. Hutchings has had several Whoopers, and a case at Nanteos contains two which were killed by Col. Powell on the Teifi Bog in the winter of 1854-55.

BEWICK'S SWAN, *C. bewicki*. Seen or obtained during every hard frost. Mr. F. T. Fielden saw eleven in the Dovey on March 2nd, 1890; parties of two and eight respectively in 1893, besides a large flock, which he could not count, flying past Aberdovey out to sea. In January, 1893, Capt. G. W. Cosens, of Llanbadarn, noted a flock of eight flying low over his house up the Rheidol Valley. About the same time a flock of forty-two remained for some days upon one of Sir Pryse Pryse's lakes. A pair of Mute Swans kept upon the same pool easily put the whole of them to flight. They used to take wing one by one with musical clamour.

EGYPTIAN GOOSE, *Chenalopex aegyptiacus*. A fine example of this introduced species was shot in 1892 from a small flock which was passing up the coast.

SHELDRAKE, *Tadorna cornuta*. Very numerous in the Dovey and Barmouth rivers, and increasing, as Mr. F. T. Fielden informs me. The fishermen used frequently to get their nets round a whole brood, but the practice has been stopped by one or two prosecutions. Breeds in the warren at Borth, and along the greater part of the Merionethshire coast, especially about Mochras Island. Where the Cambrian line skirts the Dovey flocks of from twenty to thirty may constantly be seen from the train, and in June pairs of old birds with their broods may be noted within a few yards. On April 9th, 1894, there were not less than two hundred Sheldrakes in the river between Glandovey and the sea. On July 3rd, 1893, I noticed two old birds in charge of twenty-

two young ones, but this was doubtless due to an amalgamation of broods. On May 9th, 1893, at Wallog, eggs were found in a burrow at the top of the cliff, a situation which seemed better suited to a Jackdaw.

WIGEON, *Mareca penelope*. Large flocks appear upon the Dovey at intervals all through the winter. They get unsettled about the first week in March, preparatory to departure.

GARGANEY, *Querquedula circia*. An example shot upon the Teifi Bog about twenty years since is preserved at Crosswood. Mr. Hutchings has received another more recently.

TEAL, *Q. crecca*. Occurs on the Dovey in flocks of thirty or less. Breeds on the Teifi and Borth bogs, and probably sparsely in other localities.

PINTAIL, *Dafla acuta*. An occasional visitor to the Dovey from October to March. Mr. F. T. Fielden has obtained four examples.

WILD DUCK, *Anas boscas*. Common; breeding chiefly upon the lowland bogs, but sparingly in suitable spots upon the hills.

GADWALL, *Chaulelasmus streperus*. One obtained by Mr. F. T. Fielden upon the Dovey, Dec. 6th, 1889.

SHOVELLER, *Spatula clypeata*. Obtained not uncommonly, generally upon the Dovey, whence there is a drake in fine plumage at Gogerddan. Mr. F. T. Fielden saw a flock of five on Dec. 9th, 1890.

POCHARD, *Fuligula ferina*. Occurs irregularly and in small numbers.

TUFTED DUCK, *F. cristata*. Small flocks of six or eight visit the Dovey at times.

SCAUP, *F. marila*. Upon the Dovey occurs chiefly in small flocks in October, though single birds are met with later.

SCOTER, *Edemia nigra*. In flocks upon the sea off Aberystwyth from November to March.

VELVET SCOTER, *E. fusca*. Mr. F. T. Fielden has met with one example at Borth.

GOLDENEYE, *Clangula glaucion*. A few are seen most winters upon the Dovey, and several have occurred upon inland pools. Mr. F. T. Fielden has only once noted an adult male.

LONG-TAILED DUCK, *Harelda glacialis*. An occasional visitor to the Dovey, but decidedly scarce. Two examples obtained by Mr. F. T. Fielden. One was shot in the winter of 1893-94 upon Nanteos Lake.

SMEW, *Mergus albellus*. A few occurrences, chiefly of females or immature birds, have been noted. There is an adult male in full plumage at Nanteos.

GOOSANDER, *M. merganser*. A few are seen most winters, chiefly upon the Dovey. Mr. F. T. Fielden has once met with the adult drake.

RED-BREASTED MERGANSER, *M. serrator*. Visits the Dovey in small flocks. Several are obtained every winter.

It will be seen that, omitting introduced species, the foregoing list enumerates 209 Cardiganshire birds. Of these the Lesser Whitethroat and Tree Sparrow must be regarded as doubtful. Mr. Mathew is able to include 229 authenticated species in his Pembrokeshire list, the presence of the greater number being explained by the more favourable position of that county as regards stragglers from the south.

I am indebted to Mr. Hutchings, of Aberystwyth, for much information as to the birds which have passed through his hands during the thirty years in which he has been in business as a taxidermist.

ON THE "HEPATIC" PLUMAGE OF THE CUCKOO, *CUCULUS HEPATICUS*, SPARRMAN.

BY THE EDITOR.

IN the month of April last a hen Cuckoo in the rufous stage of plumage characteristic of immaturity was shot by a game-keeper in the grounds of Beech-hill Park, Waltham Abbey, and the following morning it was placed in my hands for inspection by Mr. Rowland Ward, of 166, Piccadilly, to whom it had been forwarded for preservation. I had thus an opportunity of examining it carefully before it was skinned, and of noting the following description of it.

In general appearance it resembled a female Kestrel (*Tinnu-culus*), for which it seems to have been at first mistaken by the person who shot it. The dorsal plumage (including the entire head from base of bill, and nape) was of a cinnamon colour, each feather with three or more bars of brownish black; rump uniform cinnamon colour without any barring. Tail-feathers ten, graduating from the centre pair, which are the longest,

for the greater part cinnamon, broadly barred towards the extremities with black, and tipped with white; immediately above the broad bar a few narrower incomplete bars across a portion of both webs (most conspicuous in the two outer rectrices on each side) alternating with white spots along the shaft; the two central rectrices being only faintly barred towards the extremities. Remiges ten, the third the longest in the wing, dusky black with numerous cinnamon-coloured spots on both webs; those on the inner webs converging into white spots extending to the outer margin of the web.

Chin, throat, sides of face, neck, and upper portion of breast dusky white, each feather with two crescentic narrow bands of black. Lower portion of breast, and rest of under parts pure white, transversely barred with black; vent nearly white; under tail-coverts white, with narrow black V-shaped markings. Under wing-coverts white with narrow transverse black lines. Bill horn-colour, yellow at base; inside of mouth, tarsi, and toes orange-yellow. Irides yellowish brown.

On dissection the bird proved to be a female, but with no marked development of the ovaries.

This peculiar phase of plumage in the Cuckoo has been long known and described by several continental writers, but is of such infrequent occurrence in England as to deserve some notice when met with. So long ago as 1778, Sparrman figured an example in his 'Museum Carlsonianum,' Fasc. iii. pl. 55, under the name *Cuculus hepaticus*. In 1802, Bechstein, in his 'Ornithologisches Taschenbuch,' described it as *Cuculus rufus* (Theil i. p. 84). As from what follows it will be seen that there is a difference of opinion as to whether it is a young bird *before* or *after* its first moult, it may be well to quote here Bechstein's description, which is as follows:—

"Rothbrauner Kuckuck (*C. rufus*, mihi). Braunroth mit schwarzen Queerstreifen; der Schwanz rothbraun, mit breiten winklichen schwarzen Queerstreifen.

"Variirt in der Farbe; denn das Weibchen ist minder regelmässig gezeichnet, und auf dem rothbraunen Rücken schwärzlich und weiss gesprengt.

"Anmerk. Es hat mir immer geschienen, als wenn dieser Vogel eine besondere Art sey; Andere geben ihn aber für eine blosse Farben-varietät aus, und zwar für ein junges Weibchen."

Here we may note that from the expression "reddish brown back speckled with blackish *and white*," that Bechstein was describing a young bird in the nestling plumage, in which we are accustomed to see it in late summer and early autumn—that is, before it quits this country, and before it has moulted. For the specimen which I have just examined, and which I take to be the *Cuculus hepaticus* of Sparrman, but not the *Cuculus rufus* of Bechstein, has no white spots on the back, the dorsal plumage being, as above stated, of a cinnamon colour, each feather with three or more bars of brownish black, and the rump of a uniform cinnamon colour without any barring.

Latham, in his 'Index Ornithologicus,' 1790 (vol. i. p. 215), followed Sparrman (*op. cit.*) in treating it as a distinct species from *Cuculus canorus*, and his description contains no mention of white spots on the dorsal region.

Naumann, in his 'Vogel Deutschlands,' 1826, has figured a red Cuckoo (vol. v. pl. 128, fig. 2) with the bill black, and yellow at the base, which he characterises as a female in the second year (♀ *zweijährig*) of *Cuculus canorus*.

Amongst others of the older writers who have referred to this red phase of plumage may be mentioned Gmelin, *Syst. Nat.* (1788), i. p. 409; Le Vaillant, 'Oiseaux d'Afrique,' v. pl. 201; Retzius, 'Fauna Suecica,' 1800 (p. 100, no. 51); and Nilsson, 'Ornithologia Suecica,' 1817 (i. p. 119, no. 58), who at that date felt persuaded that it could not be the plumage of the young bird of the year. But see 'Scand. Fauna,' pl. 66.

Temminck, who has devoted several pages to a consideration of *Le Coucou roux, ou le Cuculus hepaticus des méthodes* (Man. d'Orn. 1820, Partie 1re, pp. 383—388), states that, according to his observations, it is merely the common grey Cuckoo in its second year (p. 384), and further on he expresses the opinion (p. 385) that the *Cuculus hepaticus* of Sparrman is the young "a year old" of the common Cuckoo. It is to be presumed from this that he means "after it has once moulted," for he draws a distinction between the young bird in its first plumage and the so-called "*Coucou roux* (non point les jeunes de l'année qui sont aussi *ro* âtres, mais le *Cuculus hepaticus*"), which he says is very common in the south, beyond the Alps, throughout Italy, and in Eastern Europe, where the grey Cuckoo is rare. "In early spring," he says, "I have often followed for hours *pairs*

of these red Cuckoos [suggestive of their breeding before they acquire the adult plumage], and in the month of April I have seen a great many in the markets of Italian towns, indifferently males and females, the grey birds very rarely, or not at all.' He adds:—"Every one knows that in spring only grey Cuckoos are found in the north, but amongst them are sometimes seen individuals of a pale reddish tinge. That our Cuckoo should be red during the first year of its life is not so strange when we consider that it is reddish in its earliest stage, and that it emigrates in this first plumage."

Varying his phraseology, Temminck has also expressed his views on this subject as follows (*op. cit.* p. 383):—"The bird to which naturalists refer under the name *Coucou roux* seems to me to be nothing more than another phase of the *Coucou gris*, probably the same bird a year old. Several naturalists have mistaken the young Cuckoo for the *Coucou roux*, because the plumage of the young always shows slight traces of rufous bars. Others have supposed the *Coucou roux* to be the female of the grey bird, but they are equally mistaken, for there is no difference in the plumage of the sexes. Several red Cuckoos which I have dissected were males."

This statement appears to have been generally overlooked by subsequent writers on the subject. Mr. Seebohm, for example, in his 'British Birds' (vol. ii. pp. 384-385), after correctly describing the nestling plumage as having the "upper parts barred with chestnut and tipped with white," adds that "after the first spring moult the difference between the sexes is much greater; the male loses nearly all the chestnut on his plumage, but retains the white edges to the feathers; whilst the female moults into what is called the 'hepatic' stage, in which the chestnut is increased in brilliancy, and the white edges to the feathers disappear." This, at least, Mr. Seebohm infers to be the case from an examination of a large series of skins; but that this view requires modification is evident from Temminck's statement that several red Cuckoos which he himself dissected were males.

Mr. Seebohm further remarks (*op. cit.* p. 385) that "these females just entering their second year do not breed," although Temminck asserts that in early spring he has often followed for hours *pairs* of red Cuckoos.

The nestling plumage of the Cuckoo has been accurately de-

scribed by many other authors, amongst them by Selby and by Yarrell, and yet on one point these two authors are at variance. Selby remarks (Ill. Orn. vol. i. p. 401):—"The young females have more of the reddish brown disposed over their plumage, and have little or no appearance of the white patch upon the forehead and hind part of the head. In this plumage, and till after the second moult, they answer to *Cuculus hepaticus*."

From Professor Newton's statement of the case in the fourth volume of Yarrell's 'British Birds' (vol. i. p. 407) we are led to infer that in the plumage described by Selby the bird is *Cuculus rufus*, and that the term *hepaticus* is applicable to the nestling stage. I am inclined to consider Selby's view the more correct. The subject is a puzzling one, and it is complicated by Temminck's notion that *rufus* and *hepaticus* indicate one and the same phase of plumage, which is *not* the nestling stage, but a stage intermediate between that and the adult plumage.

We have then to consider what change takes place in a young Cuckoo between its leaving this country in autumn and returning to us in the following spring. Does it moult twice in seven months, between September and April, *i. e.*, first from the nestling plumage into the hepatic stage, and secondly from the latter into the adult grey plumage? This does not seem likely. It is more probable that the hepatic condition is reached without any moult, merely by the growth of the feathers and gradual wearing off of their tips in autumn,* and then by a moult of the hepatic plumage in the succeeding spring the adult plumage is assumed. In this way only does it seem possible to account for a phenomenon hitherto unexplained. If this view be correct, a red Cuckoo in England in April will be one that has completed on the Continent its nestling or first year's plumage (which it does not stay long enough to do in this country), but which has not gone through the spring moult that would transform it into the grey plumage of the adult bird. Just such a bird as this was shot in April under Mount Lebanon by Mr. Cochrane. Canon Tristram, in a paper on the Birds of Palestine (Proc. Zool. Soc. 1864, p. 432), described it with diffidence as a new species, *Cuculus libanoticus*, chiefly on the ground that, having been obtained in

* See Meves, "On the Change of Colour in Birds through and irrespective of Moulting" (Zool. 1879, pp. 81—89).

April, it could not be a bird of the year; but it apparently did not occur to him that it might have been a bird of the previous year which had not yet moulted.

Examples in this hepatic plumage are of rare occurrence in England, for the reason that young Cuckoos, after leaving this country, moult in their winter quarters before returning to their summer haunts.

Mr. Dresser, who has naturally referred to this subject in his 'Birds of Europe' (vol. v. p. 200), but who like others is in error in supposing that the hepatic plumage is confined to the female Cuckoo, describes one (which happened to be a female) shot by Mr. W. T. Blanford near Shiraz, in Persia, in May, 1870; and another in his collection that was obtained at Hampstead, also in the month of May, "in change between this plumage and the grey dress of the adult bird."

Messrs. Gurney and Fisher have recorded the occurrence of a red Cuckoo on the 5th of May at Letton, in Norfolk,* and subsequently it appears that a second example came under Mr. Gurney's notice in the same county.†

One shot at Doddington, in Kent, about 1850, is preserved in the Cambridge Museum, and is noticed by Prof. Newton in his article on the Cuckoo, published in September, 1881, in the 4th edition of Yarrell's 'British Birds' (vol. ii. p. 407).

So long ago as 1866, in the first book which I ventured to publish, viz., 'The Birds of Middlesex,'—the precursor of so many county avifaunas,—I remarked upon the rarity in this country of what I then supposed to be *adult* Cuckoos in the reddish-brown plumage. Two examples then known to me were supposed to be adult because they had been obtained in spring, and because, strange to say, one of them was reported to have been observed in the same neighbourhood for three summers, and the other for five or six. At the present time this strikes me as an extraordinary statement to have made, though I well remember that it was so made on the authority of an excellent ornithologist, the late Frederick Bond.‡ Since that date until the present time I have never seen another example of a red Cuckoo obtained in

* "Account of Birds found in Norfolk" (Zool. 1846, p. 1315).

† Stevenson, 'Birds of Norfolk,' vol. i. p. 309.

‡ See the memoir of him (Zool. 1889, pp. 401-422).

spring; but strange to say, the specimen which has just been received by me from Bishops Waltham, Essex, was forwarded with the information that "it was there last season as well as this, and was often heard to sing 'cuckoo.'"

To explain these three cases we must assume either that the Cuckoo, from some unknown cause, may live for several years without moulting, which is not likely; or that it is dimorphous like the Crow,* or again, that observers, on seeing red Cuckoos year after year in the same locality, must have been mistaken in supposing that they were the same individual birds which had returned to their former haunts. Of course, if they were not the same birds, we are forced to the conclusion that red Cuckoos in spring are not so rare as has been commonly supposed.

Referring again to what I wrote in 1866 of the only two examples then known to me, I find the remark, "They were both females, and I believe an adult male of this colour has never been obtained." Evidently at that date I had not read Temminck's statement that he had dissected red Cuckoos *of both sexes*, nor were Messrs. Dresser and Seebohm, apparently, aware of this fact when they published their respective works. Verily we live to learn.

MEMOIR OF PROFESSOR HUXLEY.

WITH the departure from our midst of the Rt. Hon. Thomas Henry Huxley, LL.D., F.R.S., a shining light has gone out in the world of science. On the 29th June, at Eastbourne, he passed peacefully away, in the 70th year of his age. His death cannot be said to have been unexpected, for the state of his health for some time past had been such as to cause grave anxiety to his friends. Early in the year he had been stricken with influenza, and complications followed affecting the kidneys and heart, from which it soon became evident there was but little hope of recovery. Conscious to the last, he set a brave example of that composure and fortitude which is never more impressive than when displayed by one who is conscious of his approaching end.

For the last ten years he may be said to have practically retired from active life, having been compelled in 1885, through

* Cf. Newton, in Yarrell's 'British Birds,' vol. ii. p. 274.

ill health, to resign all his public appointments ; though so recently as May, 1893, he delivered the second "Romanes Lecture" at Oxford, and from time to time contrived to keep in touch with public life by the occasional utterance of an after-dinner speech, or the publication of a magazine article on some topic of the day. In one of the healthiest parts of the south of England he at length sought that quietude and repose which most men look for, or at least hope for, towards the close of life, and in the use of books, the cultivation of flowers, and the society of friends, he found a daily source of enjoyment. His busy mind, however, would not allow him to remain long idle, as he would term it, and we believe that at the time of his death he had in preparation an essay on "Saxifrages," to which plants he had for some time previously been paying close attention. For, although not a professed botanist, Prof. Huxley upon occasion wrote ably upon botanical subjects ; witness his paper upon "Gentians," published in the 'Journal of the Linnean Society' (vol. xxiv. 1887, pp. 101-124), and his Lecture at the Royal Institution upon the Border-land between Animals and Plants. Few men have worked harder to gain a reputation in the scientific world ; few have more ably earned it.

The son of a schoolmaster at Ealing, where he was born in May, 1825, he had but a brief school career, and had early to decide upon a profession. His inclination, he used to say, was to become a mechanical engineer, but it was thought better for him to apply himself to medicine. Having gone through a course of study at the Charing Cross Hospital Medical School, he graduated M.B. at the University of London in 1845, and qualified himself, in 1846, to act as a surgeon in the navy by becoming M.R.C.S. He used to declare in after years that the only part of his professional course that really interested him was the physiology—"the mechanical engineering of the living machines." It was at Haslar, when acting as assistant-surgeon, that Huxley came under the influence of Sir John Richardson, the famous Arctic traveller and naturalist, and to this association may perhaps be attributed his subsequent abandonment of physic for physiology. His first appointment as assistant-surgeon on board ship was to the 'Rattlesnake,' which was ordered by the Admiralty to make a survey of the Barrier Reef on the eastern coast of Anstralia, and also to explore the

sea between that reef and New Guinea and the Louisiade Archipelago. Just as Darwin's chance of distinguishing himself in science came to him when he was appointed as naturalist on board the 'Beagle' in her voyage round the world, so Huxley's post on the 'Rattlesnake' served as his introduction to scientific fame.

It was by his careful and minute study of the marine animals which were collected in the far-off seas visited by the vessel of which he was surgeon that he established the scientific reputation so early begun. His observations on the anatomy and affinities of the *Medusæ* and other marine forms appeared from time to time in the publications of the Royal and the Linnean Societies, and the Ray Society issued his important work on 'Oceanic Hydrozoa.' It was not till 1850 that his four years' voyage ended, and when it did there also ended Huxley's connection with the Royal Navy. In order to devote himself to science he resigned his position, and set himself vigorously to the work of arranging and tabulating the facts which he had accumulated during the voyage.

In 1851 he was elected a Fellow of the Royal Society; in 1852 received one of the Society's Royal Medals; and in 1853 published, in the volume of the Society's 'Transactions,' a memoir on "The Morphology of the Cephalous Mollusca." Up to this time his scientific labours had been carried on upon but slender pecuniary resources, but in 1854 he was appointed to a Government position as Professor of Natural History and Palæontology in the Royal School of Mines, succeeding Prof. Edward Forbes in the chair. He was also given the curatorship of the fossil collections in the Museum of Practical Geology.

In course of time he became Fullerian Professor of Physiology at the Royal Institution, and Examiner in Physiology and Comparative Anatomy to the London University. As Croonian Lecturer to the Royal Society, to which post he was elected in 1858, he chose for his subject, "The Theory of the Vertebrate Skull." Jointly with Professor Tyndall, he was the author of 'Observations on Glaciers,' a work resulting from a visit paid by the two friends to Switzerland in 1856. Vertebrate morphology and palæontology, however, were the subjects which chiefly engaged his attention in these years, and by his works on these subjects he will always be best remembered.

In 1858 he was elected a Fellow of the Linnean Society, and was one of the earliest recipients of the Gold Medal which was founded to commemorate the centenary anniversary of that Society. In 1862 his fame as a biologist led to his election as President of Section D of the British Association, and eight years later he was elected President of the Association itself. In 1872 he became Lord Rector of Aberdeen University. After serving for some years on the Council of the Royal Society, he acted as Secretary to that learned body from 1872 to 1881, and in 1883 was elected President, which distinguished position he held until 1885. His eminence as a representative of science in this country was acknowledged by his Sovereign, when in 1892 he was made a Privy Councillor, and thus became entitled to be addressed as Right Honourable.

Nor were foreign nations slow to recognise his extraordinary talents. The honour of being a Corresponding Member of the French Academy of Sciences in the subjects of anatomy and zoology fell to him in 1879; and it may be mentioned as proof of the world-wide spread of his reputation, that honorary degrees of one kind or another were conferred on him by the universities and scientific societies in most of the principal cities of Europe and America, the United States showing its agreement in our English estimate of his abilities by electing him a Foreign Member of its National Academy.

As pointed out by Prof. Haeckel ('Nature,' ix. p. 258), he has made us better acquainted with several interesting members of the class Vermes; Sagitta, Lacinularia, and some lower Annulosa. "He was the first to point out the affinities of Echinodermata with Vermes. In opposition to the old view that they belong to the Radiata, and on account of this radial type are to be classed with corals, medusæ, &c., he showed that the whole organisation of the former is essentially different to that of the latter, and that the echinoderms are more nearly related morphologically to worms. Further, he has essentially enlarged our knowledge of the important group of Tunicata by his researches on the Ascidians, Appendicularia, Pyrosoma, Doliolum, Salpa, &c.

"Many important advances in the morphology of the Mollusca are also due to him. Thus, *e.g.*, he has greatly elucidated the controverted subject of the homology of regions of the body in the Mollusca. But it is the comparative anatomy and classifica-

tion of the Vertebrata which he especially studied and advanced. His excellent 'Lectures on Comparative Anatomy,' 'Elementary Physiology,' 'Introduction to the Classification of Animals,' and 'Anatomy of Invertebrate Animals,' afford abundant proof of this, to say nothing of his numerous important monographs on living and extinct fishes, amphibians, reptiles, birds, and mammals."

In one only of the many appointments which he held did he fail to shine. This was the Inspectorship of Salmon Fisheries, which he applied for and secured on the death of Frank Buckland. For this post he was unsuited, possessing none of the instincts of the out-of-door naturalist* or fisherman, and having therefore little appreciation of the requirements needed in the way of fishery legislation, and the best way of amending it. Nor had he even that indispensable acquaintance with the Salmon in all stages of its existence, all known by various local names, which cannot be learnt from "spirit specimens," and which was possessed, for example, by the late Surgeon-Major Francis Day (Zool. 1889, p. 306), who was also a candidate for the post, and who from his practical knowledge of the subject would have made a far better Inspector of Fisheries. To a man of Prof. Huxley's calibre the uncongenial nature of the duties attaching to the office, and the long railway journeys necessitated by periodical inspections in distant parts of the country, soon became burdensome, and it was therefore not long before he resigned the appointment, although not until he had prepared a valuable report, with the aid of Mr. George Murray, on the nature of that troublesome disease in Salmon, *Saprolegnia*. His monograph on the Crayfish also (Internat. Sci. Series, 1880) marked this epoch in his life.

Perhaps the most noteworthy fact in Prof. Huxley's career is that he did more than any other man to uphold and promulgate the doctrine of evolution. It was in 1858 that Charles Darwin and Alfred Russel Wallace simultaneously laid their great theory of 'Natural Selection' before the Linnean Society, and in the

* He said of himself:—"I am afraid there is very little of the genuine naturalist in me. I never collected anything, and species work was always a burden to me. What I cared for was the architectural and engineering part of the business, the working out of the wonderful unity of plan in the thousands and thousands of the diverse living constructions and the modifications of similar apparatuses to serve diverse ends."

November of the following year Darwin's 'Origin of Species' was published. The effect of the speculations and conclusions of that great naturalist on Prof. Huxley was immediate and profound, as may be seen from his appreciative remarks in the 'Westminster Review' for April, 1860. At the present day it is difficult to realise what a revolution in the world of thought was caused by the new doctrine. To most theologians it was irreligious. To many men of science it was a seductive fallacy. Owen, the *doyen* of English anatomists, never adopted it. The French naturalists would have none of it. Very few of the most eminent British *savants* gave it a whole-hearted acceptance, but foremost amongst these was Huxley, who to the last remained steadfastly the champion of "Darwinism."

His wide reading, clear thinking, and vigorous writing made him a formidable controversialist, and it has been well observed of him by a recent writer that his success in life is striking proof of the predominance of the literary faculty. It was his clear philosophic reasoning and that literary gift which Darwin so greatly envied that made him the potent personality he was to his contemporaries, and will ever be to posterity.

NOTES AND QUERIES.

MAMMALIA.

The Marten and Polecat in Wales.—On Jan. 24th an adult Marten was sent to Mr. Hutchings, of this town, for preservation. It was obtained near Llanberis, and is now in the possession of Mr. J. W. Wyatt, of East Court, Wells. A younger example, not full grown, was received from the same locality twelve months previously, both being trapped upon the same property. As confirming what I have already stated as to the abundance of the Polecat in this district, I may mention that fifteen examples were captured during the first three months of the present year.—J. H. SALTER (University College, Aberystwyth).

Albino Shrew in Yorkshire.—On June 25th my friend Major Arundel, of Ackworth, in the West Riding, sent me a beautiful white specimen of the Common Shrew, *Sorex araneus*, which on the previous day he had picked up dead on the road between Ackworth and Pontefract. It is perfectly white, without a dark hair anywhere, and the eyes were devoid of pigment. I was very much afraid at first that I should be unable

to preserve it, as the hair was beginning to slip badly upon the abdomen; but setting to work with great care, it has turned out a very pretty little specimen.—OXLEY GRABHAM (Flaxton, York).

BIRDS.

Sale of Great Auk's Egg.—Another egg of the Great Auk has lately changed hands (*vide antea*, p. 193). On June 25th last, Mr. J. C. Stevens offered for sale by auction in his well-known room in King Street, Covent Garden, an egg of *Alca impennis*, from the collection of Baron Louis d'Hamonville. The history of this egg as given in the Sale Catalogue is as follows:—"Lot 211. Egg of the Great Auk. Taken in Iceland about 1830 by a shipowner of St. Malo, who bequeathed it to the Comte Raoul de Baracé, whose collection was purchased by the Baron d'Hamonville. This specimen (slightly cracked), which in colouring and texture is unique, was figured in the 'Mémoires' of the Société Zoologique de France, 1888 (pl. vi. fig. c), and additional notes on its history appeared in the 'Bulletin' of the same Société in 1891."

Mr. Symington Grieve, in his work on the Great Auk, referring (Appendix, p. 25) to the three eggs of this bird in the collection of the Comte de Baracé at Angers, states that they came "from Iceland by way of St. Malo, some time before 1837"; but, according to his own showing (*op. cit.* p. 104), one of them seems to have been procured in Paris by the Abbé Vincelot of Angers, from whom it was purchased by the Comte de Baracé, who obtained another of them from Fairmaire of Paris. What authority there is for fixing the date of the third example (which according to the recent sale catalogue was "taken in Iceland about 1830") is not stated, nor is any evidence afforded that the finder was a shipowner of St. Malo. The French expression may have been "armateur," but possibly the word intended was "amateur." However that may be, the egg just sold by auction was one of three which belonged to the Comte de Baracé, and which subsequently came into the possession of the late owner, Baron d'Hamonville. The latter has published in the 'Bulletin' of the Société Zoologique de France (1891, pp. 34—38) the history (so far as he could collect it) of each of them, having previously furnished coloured figures of the natural size (together with a similar figure of Yarrell's specimen, which he acquired in 1875, on his purchase of Bond's collection), in the 'Mémoires' of the same Société for 1888 (pp. 224—227, Pls. V.—VI.). One of these M. de Baracé had purchased through Fairmaire of Paris in 1858 from the Baron de Vèze, who had bought it of Parzudaki of Paris, in 1855, for 500 francs. It became the property of Baron d'Hamonville in March, 1887. The two others, it appears, came from Iceland (as stated by M. de Baracé in a letter to Dawson Rowley dated Jan. 13, 1867), whence he had received them more than thirty years before (about 1834 or 1835),

through an *armateur* (or *amateur*) resident at St. Malo, and it is one of these which has been sold. The peculiarity about this specimen, which is described in the sale catalogue as being "unique in colouring and texture," is that the markings upon it, more numerous on the sides than at the larger end, are of a pale *green* colour, most unusual in eggs of this species. Although the specimen is slightly cracked, this did not prevent a bid of 100 guineas being made for it. The biddings advanced by five and ten guineas at a time, until the sum of 165 guineas was reached, at which price, there being no further advance, it was knocked down to Mr. T. Jay, of Regent Street.

Notable increase of the Lesser Tern in Co. Mayo.—To any naturalist visiting the estuary of the Moy and Killala Pool, the elsewhere unusual but interesting sight of four species of Terns fishing in company may be witnessed any day, the species being the Sandwich, Common, Arctic, and Lesser Terns. The first-named breeds on the little island-lake of Rathronyem, the second on Lough Conn, and also, in company of the Arctic and Lesser Terns, on the "Inch" and Ross shore by Killala Pool. The breeding haunt of the Lesser Tern, *Sterna minuta*, the "Inch," is the largest of a small group of gravelly islands situated at the end of the little peninsula of Ross, but as it is the only one uncovered by the spring tides, it is the haunt of the Terns, whose eggs are placed above the level of the high tides. Ross peninsula is about a mile in length and half-a-mile in width at its broadest parts, the western side being a low sandy flat, the shore of a little sheltered bay; while the eastern side consists of a range of low sand-hills, the boundary of the Pool and channel running to the open sea. The usual stock of Lesser Terns breeding on the Inch generally consisted of ten or twelve pairs, some years less, while that of the Common and Arctic Terns, of perhaps twice that number. On June 14th, when visiting this breeding haunt, I found to my surprise the numbers of the birds greatly increased: at least twenty pairs of Little Terns appeared flying about and resting on the shores, while fully twenty to thirty pairs of the larger species were in sight also. Landing on the Inch, we found several nests of the Common and Lesser Terns, some on the bare stones without any attempt at nest-building, and containing from two to three eggs each; but the number of nests found being so few compared to the number of birds seen induced me to look further for the real haunt where the bulk of the birds bred; so seeing several hovering over and pitching on the peninsula, I crossed over, and then found that the three species were breeding along the shores for nearly half-a-mile. Their favourite sites for laying their eggs were on the stony bases of several little mounds that rose out of the sands where the looser parts had been blown away, leaving the stony flats and bases exposed, and here on the bare stones, and in many places on the bare sand, the eggs were laid: most of the eggs I examined

were within a day or two of hatching out, and we found one newly hatched bird lying alongside an unhatched egg. Observing several of the small Terns hovering over the sand at the end of Bartragh, I crossed the channel to the island, and found four pairs hatching on the bare sand just above high-water mark. It was the first time I had found Terns breeding on the island, although visiting it annually for the last thirty years. This sudden arrival of such large numbers of the Lesser Tern to a breeding haunt usually frequented by so few birds is very interesting, and suggests that from some unexplained cause they had probably deserted some other breeding-ground. Their nearest haunt to Killala Bay is that in Brown's Bay on the Sligo coast, between thirty and forty miles distant; but even if they had moved from that haunt it would not account for the increase in their numbers, for only about ten or twelve pairs usually breed there.—ROBERT WARREN (Moy View, Ballina, Co. Mayo).

Fearlessness of the Spotted Flycatcher.—On June 6th, 1895, I found a nest of the Spotted Flycatcher, *Muscicapa grisola*, containing five eggs; and as they were exceptionally well-marked specimens, I took both nest and eggs for my collection. On arriving at an outhouse in my garden, about fifty yards from the spot, I examined the eggs more carefully, and came to the conclusion that they were of no use to me, being apparently hard set. Therefore, after testing one of the eggs in water, I returned to the spot and replaced the nest in the fork of the tree from which I had taken it, arranging it as naturally as possible. To my surprise the old bird shortly returned to it, and recommenced sitting on the eggs as if nothing had occurred. On June 9th I revisited the nest and found young birds in it, and they are now (June 12th) doing well.—E. A. BUTLER, Lt.-Col. (Brettenham Park, Ipswich).

Language and Instincts of the Domestic Fowl.—At a recent meeting of the Oxfordshire Natural History Society, held in the Museum, Mr. G. C. Druce, F.L.S., in the chair, a lecture was given by Mr. G. J. Burch, M.A., on the language of birds. He explained that he had been led to make a series of systematic observations on the language and instincts of the domestic fowl some years ago, when the negligence of a sitting hen obliged him to undertake the care of some young chicks from the time of their leaving the shell. Hatched under these circumstances, there were special opportunities for observing the inborn faculties of the birds, and the lecturer had found that all his preconceived notions of inherited instinct must give way before the utter helplessness of the chicks. Unable at first to balance themselves on their feet, repeated efforts had to be made before they could stand. They were without any notion of picking up food when hungry, or swallowing it; indeed, the most rudimentary actions of life had to be learnt by experience. Absurd attempts to reach an object were made before any idea of distance was gained, and stranger

still the "clucking" of the hen only excited fear, though the chicks would run confidently to the hand of the lecturer. Further details were given of the habits of young birds brought up away from the parent, giving evidence of intelligence and application, but showing a lack of the usual peculiarities when unable to learn them from other members of their species. The lecturer pointed out that there are two methods of communicating thoughts and wishes—the *visible* method, *i. e.*, gesture, and the *audible*, or language, and that in man the latter had become so complete and accurate that the former was unnecessary, though in lower animals it was all-important. Keeping to the domestic fowl as a type, he admitted the great difficulty of learning its language, as the means of gesture and the organs of speech are so different from our own. By a series of lantern slides he explained the apparatus in man and in these birds for producing sounds and articulate speech, showing in each case which parts of the organs are brought into use for the different sounds. Long and close observation of the poultry yard had enabled him not only to analyze the sounds produced, and to explain them physiologically, but also to learn their significance and imitate them so successfully as to be understood by the birds themselves. He pointed out that they would not notice or answer to ordinary pet names, but looked up at once if their own call-notes were imitated. They did not understand pointing with the finger, as they themselves pointed with the head and beak. Very close investigations were given by the lecturer of the call-notes of different individuals, the alarm note, the call to food, and the cry of danger. Gestures and expressions of fear and disgust, the mode of salute, and soothing reassuring sounds heard at roosting time in the darkness were described and imitated. Distinct gestures and notes are used when one bird challenges another, and the brooding hen has a vocabulary of her own, modified and limited till her young ones are able to run about. The crowing of the cocks, though similar to the ears of the uninitiated, differs in individuals, and varies with the emotions which it expresses. Interesting accounts were given of the intelligence shown by these birds in learning to unlatch the door of a fowl-house, and in aiding a search for rats. In conclusion the lecturer urged the members of the Society to undertake further investigation into the language of birds, a study for which there is special facility in the case of domesticated species.

Young Pewits and Pheasants Swimming.—I was interested to see some young Pewits take voluntarily to the water, one in particular swimming perhaps eighty yards. I have also seen young Pheasants, only a few days old, take to the water and successfully cross a small pool of dark-coloured water in a peat-moss.—CHARLES F. ARCHIBALD (Rusland Hall, Ulverston).

Increase of the Hawfinch in Sussex.—It appears to be the almost unanimous conviction of ornithologists that the Hawfinch has extended its range and increased in numbers of late years in England; and it is pleasing to record that a careful endeavour to arrive at the true position which the

species holds in the Sussex avifauna has led me to regard it as certainly on the increase. In his 'Ornithological Rambles in Sussex' (1849), the late Mr. A. E. Knox cites but one instance of the Hawfinch breeding in the county, and adds that the bird is "of uncertain occurrence, being not unusual during some years, and comparatively rare in others" (*cf.* Borrer's 'Birds of Sussex,' pp. 126-128—though the author does not view the matter in a comparative spirit). Mr. Field, of St. Leonards, has kindly shown me eggs from a nest brought to him last year, and also those from another taken by himself during the present year. In each case the birds indulged their usual proclivity for gardens. I have also great reason to believe that another nest has been taken in this vicinity during the present year. In November, 1894, I saw two male Hawfinches feeding in the neighbourhood of Battle—the scene of the famous Norman victory—and on pointing them out to an intelligent gardener he assured me that such a sight is by no means uncommon in *winter*.—W. C. J. R. BUTTERFIELD (Stanhope Place, St. Leonards-on-Sea).

Nesting of the Hawfinch and Greater Spotted Woodpecker.—In the last number of 'The Zoologist' (p. 232), Mr. Steele Elliott gives an account of a Hawfinch's nest screened with green leaves plucked by the bird. I have never had the fortune to observe this interesting fact; but a nest that I found this year was built on a small oak sapling about nine feet high, entwined round which was a cluster of the common honeysuckle, and the bottom of the nest outside, being formed, as is usual with the Hawfinch, of green grey lichens, assimilated so closely with the colour of the under side of the honeysuckle leaves that it was most difficult to distinguish. A nest of the Chaffinch which I found deserves mention: it was in a wood, built in the fork of a small hazel, and neatly and beautifully made as usual, but studded all over outside with the chips that a Great Spotted Woodpecker had turned out of the nesting hole in an adjoining tree, which gave it a very curious appearance, and so far from being in any way protective, at once drew the attention of the eye towards it. With regard to this same Great Spotted Woodpecker, having the good fortune to find the bird at work inside the tree, and to witness the showers of chips that were expelled at the same time from the hole, I feel convinced, as was suggested by a friend of mine, that the bird uses the stiff tail-feathers as a kind of broom with which to sweep out the chips.—OXLEY GRABHAM (Flaxton, York).

Nesting of the Lesser Spotted Woodpecker near Bath.—Although the nesting of this little known Woodpecker in Somersetshire may be of more frequent occurrence than is supposed, yet the following remarks may be of interest to ornithologists, more especially to those who are interested in the avifauna of this particular county. On June 9th, accompanied by a friend, I was strolling along the side of a ditch, when I

observed a Lesser Spotted Woodpecker (*Dendrocopus minor*), with some food in its beak, fly into a high aspen, of which there were several in a row. Hurrying towards the nearest tree, we noticed a large decayed bough, about forty feet from the ground, on the under surface of which were two small circular holes, evidently bored by these little birds. Lying quietly in the grass beneath the tree, we had the pleasure of seeing the male bird (whose red cap was distinctly visible) very cautiously enter the lower of the two holes four times in the space of about twenty minutes. No climbing was necessary to ascertain what the nest contained, for we could distinctly hear the young ones. The fourth time the bird entered the hole a noise we carelessly made frightened it very much. It flew out of the hole in a great hurry, and made a noise about the trees exactly like Blackbirds do when they are disturbed by a cat, though not so loud. It also frequently "tapped" the trees after the manner of a Nuthatch. In fact, my companion, who did not perceive its exit from the hole, was completely deceived by these notes, really believing it was a Blackbird. It displayed wonderful agility while searching for food about the boughs. When a sudden or strong gust of wind threatened to blow it off its perch, it quickly crept round the opposite side of the branch. We searched carefully for the hen bird, but in vain, the cock seeming, by itself, to undertake the business of rearing the brood. Perhaps some mishap had befallen its mate. On a branch of a neighbouring aspen were several holes of the same size as that occupied, undoubtedly made by Lesser Spotted Woodpeckers, though none of them appeared to be tenanted. We left the spot, when the bird at last flew away, feeling sure that it would remain safe from molestation. The locality in which we found this nest is quite in the opposite direction to the nest of the same species which I lately recorded (p. 22). I do not feel justified, however, in naming the place, for I am anxious to see whether the birds will nest there next year. A male Lesser Spotted Woodpecker, which I received in the skin, was shot on the outskirts of the town in February last. The weather at that time was very cold, and it was obtained close to a long row of houses. Occasional reports reach me of these birds being seen about Bath, but they nearly always want confirmation.—CHARLES BETHUNE HORSBRUGH (Richmond Hill, Bath).

Nesting Habits of Curlew.—I am informed by Mr. Richard Holme, whose observations I have recorded on former occasions in this Journal, that when recently visiting a Curlew's nest on a small moss on the fells in this district, the old bird allowed him to walk past her within four or five feet without leaving the nest. This was some ten days before the young were hatched. Curiously enough, I have a note referring to the identical place, showing that four or five years ago a Curlew allowed me to approach within two yards without leaving the nest. As we are both accustomed to see Curlews rise from their eggs very wild, and have found several nests by

marking the spot from which they departed, I think it may be worth while to put this on record.—CHARLES F. ARCHIBALD (Rusland Hall, Ulverston).

Nesting Habits of the Oystercatcher.—Amongst the objects collected by these birds to form nests I have observed the dry droppings of Rabbits on more than one occasion. This was on a Rabbit warren on Walney Island. Do Oystercatchers occasionally suck eggs? On the shores of Cardigan Bay I once saw some Lesser Terns dash angrily at a "Sea Pie," which ducked its head each time. Close to the spot I found an egg, evidently sucked, though not recently.—CHARLES F. ARCHIBALD.

Nesting of the Dunlin in Wales.—It may be of interest to ornithologists to know that I found a nest of the Dunlin, *Tringa alpina*, containing four eggs, in Merionethshire on May 29th last. It was placed in some short heather on the top of Clogwyn Llwyd, a moorland 1600 feet above the level of the sea, and lying midway between Llanuwchllyn and Trawsfynydd.—H. S. DAVENPORT. [See Zool. 1893, p. 269.—ED.]

Wood Pigeons nesting near the Ground.—I have on at least two occasions found Wood Pigeons, *Columba palumbus*, breeding close to the ground, as mentioned by your correspondent Mr. Witherby (p. 232). In each instance the nest was placed in a low tuft of blackthorn, and was not a foot above *terra firma*. Perhaps the most remarkable fact was that the blackthorn scrub grew in a wood which presented every facility for nesting in trees, and other Wood Pigeons which were breeding there built in ordinary situations. I have found nests of the Stock Dove, *C. anas*, on the ground amongst ivy where the surroundings have been rocky, but in every case the nest was near the edge of a small cliff or rocky buttress. I have also found the eggs of these birds in rabbit-holes, or ledges of rock, about old ruins, in hollow trees, in old Magpies' nests, in Squirrels' nests, once in a Wood Pigeons' nest, and in pollard willows, &c. They are now fairly plentiful in some parts of the south of Scotland, where they breed annually.—J. J. ARMISTEAD (Solway Fishery, Dumfries).

Greenfinch appropriating Thrush's Nest.—Last spring a pair of Thrushes built their nest in a yew-tree hard by my house. The old birds disappeared, and the nest being forsaken I paid no further attention to it, until one day in the middle of June I heard a great chirping proceeding from it. Having procured a ladder I went up to have a look, and on my mounting to the top four young Greenfinches scuttled out of the nest. No extra lining had been put in, and there were the four Thrush's eggs, somewhat covered with *débris*, but unbroken. The Greenfinches had unlimited opportunities for selecting more comfortable quarters.—H. MARMADUKE LANGDALE (Thornecroft, Compton, Petersfield).

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

June 6th, 1895.—Mr. W. PERCY SLADEN, V.-P., in the chair.

The minutes of the last meeting having been read and confirmed, the Chairman, on behalf of the President, nominated the following to be Vice-Presidents:—Messrs. J. G. Baker, F. Crisp, A. Lister, and W. P. Sladen.

Mr. B. B. Woodward was elected a Fellow.

Mr. M. Buysman, who has laboured for many years to establish a garden at Middleburg for economic plants, exhibited specimens to show the excellence and completeness of his preparations.

On behalf of Mr. T. J. Mann, who had lately returned from Ceylon, Mr. Harting exhibited specimens of a butterfly, *Catophaga galena*, Felder, which had been observed migrating in thousands across the northern part of that island during March and April last, in a direction from N.E. to S.W. The movement commenced about 7 a.m. and lasted until noon, when it decreased, and was resumed in the afternoon for another two hours. Mr. Harting referred to the remarks on this subject made by Sir J. Emerson Tennent (Nat. Hist. Ceylon, 1861, p. 404, note), to the observations of Darwin on the countless myriads of butterflies met with at sea some miles off the mouth of the Plata (Nat. Voy. p. 158), and to a paper by Mr. R. McLachlan on the migratory habits of *Vanessa cardui* (Entom. Mo. Mag. xvi. p. 49). He did not think that the movement was analogous to the migration of birds, which travelled in opposite directions in spring and autumn, for the insects moved only in one direction, and did not return, vast numbers perishing *en route*. The phenomenon rather resembled what had been observed in the case of Lemmings, Locusts, and Dragonflies (Weissenborn, Mag. Nat. Hist. n. s. vol. iii. p. 516), and might be explained as a sudden exodus from the birthplace, leading to a compensating reduction of the species after a season exceptionally favourable to its increase. His remarks were criticised by Col. Swinhoe, who was inclined to confirm this view, and by Mr. Kirby, who referred to the particular species which were found to take part in these so-called "migrations."

A new *Distomum* was described by Mr. G. West, whose observations were favourably criticised by Mr. W. P. Sladen and Prof. Howes.

On behalf of Mde. van der Bosse, Mr. George Murray communicated a description of a new genus of Algæ (*Pseudocodium*), the characters of which were minutely pointed out by means of specially prepared lantern-slides.

A paper was then read by Mr. A. Vaughan Jennings on the nature of *Mobiusispongia parasitica*, on which critical remarks were made by Prof. Rupert Jones and Mr. F. Chapman.

A second paper by Mr. Vaughan Jennings contained a description of a new genus of Foraminifera of the family *Astrorhizida*.

June 20th.—Mr. C. B. CLARKE, F.R.S., President, in the chair.

Mr. George Massee was elected a Fellow of the Society.

Mr. F. Enock exhibited and made some remarks upon a living specimen of an aquatic hymenopterous insect, *Polynema natans*, Lubbock.

Messrs. E. Baker and C. Reid exhibited some rare plants from the limestone hills, Co. Kerry, including *Pinguicula grandiflora*, Lam., contrasted with *P. vulgaris*, and *Saxifraga geum* contrasted with *S. umbrosa*, with a view of determining their value as subspecies or geographical races.

Mr. Carruthers exhibited some feathers of a Cuckoo taken at Whitchurch, Shropshire, on May 23rd last, amongst which were some moulted feathers which were held connected with the new feathers which had replaced them by means of the barbed seed-capsules of a subtropical grass, *Cenchrus echinatus*.

On behalf of Mr. S. Loat, there was exhibited a Cuckoo's egg taken from the nest of a Hedgesparrow, together with five white eggs of that species, an abnormality not often met with. An examination of these eggs under the microscope showed that in regard to the texture or grain of the shell they agreed with eggs of the Hedgesparrow, and not with those of the Robin, of which white varieties are not so rare.

Mr. George West then gave the substance of a paper on some North American *Desmidaeæ*, describing the characters of several new species with the aid of specially prepared lantern-slides.

Mr. A. Vaughan Jennings gave a detailed account of the structure of the Isopod genus *Ourozeukes*, upon which an instructive criticism was offered by the Rev. T. R. Stebbing, who was present as a visitor; some further remarks being made by Mr. W. P. Sladen.

Mr. F. N. Williams communicated the salient points in a critical paper which he had prepared, entitled "A Revision of the genus *Silene*."

On behalf of Mr. E. R. Waite, Prof. Howes gave an abstract of a well-illustrated paper on "The Egg-cases of Port Jackson Sharks," and exhibited several spirit specimens in further elucidation of the subject.

This meeting terminated the session.

ZOOLOGICAL SOCIETY OF LONDON.

June 18th, 1895.—Sir W. H. FLOWER, K.C.B., F.R.S., President, in the chair.

The Secretary read a report on additions made to the Society's Menagerie during the month of May, and called particular attention to the following animals:—A Black-billed Sheathbill, captured at sea, 52° S., 55° W., and

presented by Mr. John Gunn; a female Grysbok, presented by Mr. J. E. Matcham, of Port Elizabeth, South Africa; and a young male Panolia Deer, from Southern China, presented by Mr. Julius Neumann.

Mr. Sclater exhibited and made remarks on the head of a Barbary Sheep, *Ovis tragelaphus*, obtained by the late Capt. Dunning on the Nile above Wady Halfeh, and the skin of a Humming-bird, *Anthocephala berlepschi*, from Colombia, received from Mr. R. B. White.

Prof. Howes exhibited and made remarks on the skull of a Rabbit showing abnormal dentition.

A letter was read from Dr. Hubrecht, showing that a supposed new mammal from Sumatra, which he had described as *Trichomanis hoevenii*, was probably nothing more than an *Arctonyx*.

Mr. Sclater exhibited and made remarks on a specimen of Loder's Gazelle, *Gazella loderi*, recently obtained in the western desert of Egypt.

Mr. W. Saville Kent exhibited a drawing of a Nudibranch from Western Australia, remarkable for its large size and brilliant colour.

Mr. J. Graham Kerr read a paper on some points in the anatomy of *Nautilus pompilius*. The morphological meaning of the arms in Cephalopods was discussed briefly. It was pointed out that the only strong basis on which the hypothesis of the pedal nature of these organs rested was that derived from the consideration of their innervation by the "pedal" ganglion or a derivative of it. The force of this evidence was completely dependent upon the assumption that this ganglion was precisely homologous with the pedal ganglia of Gasteropods; and this assumption appeared to be unjustified, the evidence of comparative anatomy pointing to the independent phylogenetic development of the several ganglia of Gasteropods, and of the similarly named ganglia in the higher Cephalopods, from a condition of continuous nerve-strands such as occurred in *Chiton*, *Nautilus*, and other archaic forms. The author advocated the abandonment of the view that the arms are pedal, and the resumption of what appeared the inherently more probable view, that they are processes of the head-region.

A communication was read from Messrs. F. E. Beddard and A. C. Haddon, containing an account of a collection of Nudibranchiate Mollusca recently made by the latter in Torres Straits.

Mr. Boulenger read a paper on a large collection of fishes made by Dr. C. Ternitz in the Rio Paraguay.

A communication was read from the Babu Ram Bramha Sányál, giving an account of the moulting of some Birds of Paradise in the Zoological Gardens, Calcutta.

A communication was read from Mr. O. Thomas and Col. J. W. Yerbury, giving a description of a collection of Mammals made by the latter at Aden last winter. It was shown that thirty-six species of Mammals are now known to occur in the Aden district.

A communication was read from Mr. Edwin C. Reed, containing a list of the Hemiptera-Heteroptera of Chili.

Mr. H. Druce read a paper on Bornean Butterflies of the family *Lycanidæ*, in which he had catalogued all the species already recorded from that island, and gave descriptions of a considerable number of new species, principally from Mount Kina-Balu. The number of butterflies of this family previously recorded from Borneo was about 75, and this paper contained references to about 220.

A communication was read from Dr. A. G. Butler, containing an account of a small collection of Butterflies, sent by Mr. R. Crawshay from the country west of Lake Nyasa. Five species were described as new.

Dr. J. Anderson read a paper describing a collection of Reptiles and Batrachians made by Col. Yerbury at Aden and the neighbourhood during the past winter.

Mr. Boulenger gave an account of the Reptiles and Batrachians collected by Dr. A. Donaldson Smith during his recent expedition in Western Somaliland and the Galla country.

This Meeting closed the Session 1894-95.

ENTOMOLOGICAL SOCIETY OF LONDON.

June 5th, 1895.—Lord WALSLINGHAM, F.R.S., Vice-President, in the chair.

Dr. Sharp exhibited, on behalf of Dr. G. D. Haviland, two living species of *Calotermes* from Borneo. Specimens were also exhibited to illustrate the neoteinic forms that were produced in Borneo after a community had been artificially "orphaned." Prof. Riley remarked that in many cases it would be extremely difficult to artificially "orphan" a nest without destroying it; he also commented on the short time in which the queen appeared to have been developed, and on the apparently rapid development of the wing-pads, which usually cannot take place except after several moults; and he expressed his opinion that further information on these points was much to be desired.

Mr. McLachlan exhibited examples of the female of *Pyrrhosoma minium*, Harris, having the abdomen incrustated with whitish mud through ovipositing in a ditch in which the water was nearly all dried up. He had noticed the same thing in other species of *Agrionidæ*.

Herr Jacoby exhibited four varieties of *Smerinthus tilia*.

Mr. Enock exhibited specimens of the thistle-gall fly, *Trypeta cardui*, and also of *Caraphractus cinctus*, Haliday (= *Polynema natans*, Lubbock).

M. Alfred Wailly exhibited living larvæ of *Rhodia fugax*, and also a cocoon of a bright green colour, differing considerably in shape from those of all the other known silk-producing Bombyces.

The Secretary exhibited, on behalf of Mr. T. D. A. Cockerell, of Las Cruces, New Mexico, four species of lac-producing *Coccidæ*, viz. *Tachardia gemmifera* from Jamaica, *T. pustulata*, n. s., and *T. fulgens*, n. s., from Arizona, and *T. cornuta* from New Mexico. In the discussion which followed Lord Walsingham mentioned the fact that an American species of Micro-lepidoptera, belonging to the *Ecophoridae*, feeds on the secretion deposited by one of the *Coccidæ*; this species, for which Dr. Clemens created a genus (the name for which was found to be preoccupied and now stands as *Euclemensia*), is the nearest ally to the lost *Ecophora woodiella*, taken many years ago in England.

Mr. Roland Trimen exhibited some specimens of "Honey" Ants, discovered at Estcourt in Natal about a year ago, by Mr. J. M. Hutchinson, all with the abdomen enormously distended with nectar; but other examples presented to the South-African Museum by Mr. Hutchinson comprised various individuals exhibiting different gradations of distention, thus indicating that the condition of absolute repletion is arrived at gradually, and may possibly be reached by some few only of those individuals who feed or are fed up for the purpose. Mr. Trimen remarked that while the occurrence of "Honey" Ants in Southern North America, South Australia, and he believed also in India, was well known, the Natal species now exhibited was the first African one that had come under his notice. Prof. Riley said that the American species referred to by Mr. Trimen was common from Colorado to Mexico, and that the honey-bearing ants were often very numerous in its communities; he further pointed out the fact that many common species of ants have the power of distending the abdomen with honey, and that this was very evident in certain species of *Formica*.

Dr. Sharp exhibited a series of Coleoptera, to illustrate the fact that great variation in size of the individual, or of some of its parts, is very rare in Coleoptera, and is observable most conspicuously in those species in which the males possess unusual structures, the use of which is unknown; such are the *Brenthidæ* and the genus *Rhina*, the males of which possess enormous rostra, which are of no direct use to this sex, though the corresponding organ in the other sex is of great use, although less developed. The *Lucanidæ* and the horned *Lamellicornia* also exhibit great variation in size of the individual, more particularly in the male sex. The cases of variation in size in the great group of *Chrysomelidæ* were chiefly remarkable in genera like *Sagra*, where the males possess unusually developed hind legs, for which at present no important use is known.

Mr. Kirkaldy exhibited specimens of *Cymatia coleoprata*, Fab., from Morden, Surrey, an insect which had not before been recorded from the London district.—W. W. FOWLER, *Hon. Secretary*.

